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THE AMERICAN JOURNAL OF THEOLOGY

Volume III

OCTOBER, 1899

Number 4

THE PROPER USE OF SCIENCE BY THE PULPIT.

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THE writer feels great hesitation in discussing such a subject, as he is entirely unfamiliar with the details of instruction in our theological schools. His observation of ministers in active service has been somewhat extensive, but they must represent the theological training of a decade or more ago. Since that time the methods of training may have been revolutionized, for it is within that period that the most evident need of changed methods has developed. It is frankly conceded in the outset, therefore, that many of the needs herein suggested may have been provided for already; but it may be of some service for a representative of those whom the pulpit is intended to influence to speak of some of his impressions of pulpit training as exemplified by those now in active service. It must not be supposed that any criticism that may be ventured upon is directed against ministers indiscriminately, for, as in every other learned profession, there are those who pass beyond their formal training and do not retain its distinctive marks. The suggestions offered are based upon the average product of theological training, to be observed in the majority of pulpits today.

A proper preparation for the pulpit has become almost

overwhelming in its demands. With the advance of knowledge every teacher is called upon to carry an increasing burden, and no preparation has become so vast and varied as that of him who teaches from the pulpit. It is not within the power of a man to compass all the traditional training for the pulpit, and also the vast new body of truth that can be made of prominent service. In the selection which must result it would seem wise to reduce the speculative parts of preparation to a minimum, and to put emphasis upon things that are known.

No region of human knowledge confronts the pulpit with greater menace, if neglected, or with greater promise of help, if cultivated, than that included under the general name of science; and yet, in this form of training the pulpit is glaringly deficient. The conflict between science and theology, which once was made so prominent an issue, was kept alive by theologians who had no conception of the purpose and methods of science, and by scientific men who confused theology with religion. The two parties to the conflict each stood for a great body of truth, concerning both of which speculations differed; but speculations are not vital.

In the present discussion it is proposed to suggest the possible service of science to the pulpit, restricting the term science to that part of it popularly known as "natural science." This special field of human knowledge has recently developed so enormously and has entered so intimately into the interests of mankind that the present period is often spoken of as the "age of science." Whether the phrase be just or not, it serves to emphasize the fact that science is a very prominent factor in modern life.

With the development of science has come the development of the scientific spirit, involving a point of view and a method totally different from those of a century ago. This scientific spirit, chiefly through the influence of educational institutions, is taking possession of mankind, and it would seem to be a necessity for the pulpit to understand and use it. If the pulpit is to retain dominant influence over educated men and women, it must enter into their thoughts, and approve itself in method and material.

It is claimed here that natural science may be of immense service to the pulpit both in training and in material.

I. TRAINING.—It is necessary to discover the peculiar results of scientific training before the claim can be made clear that it may be of service to the pulpit. Contact with the so-called “humanities” cultivates the power of appreciation, the ability to recognize what is best in human thought and conduct. The power of appreciation involves both the injection of self and an artificial standard. Self-injection means the ability to read between the lines, to put into them a meaning which is suggested rather than stated, and which is in the main a subjective result, dependent upon the individual and not upon inherent truth. The standard of appreciation for most persons is conventional, for a few individual, in all cases subject to wide variation. This simply means that there is no standard of appreciation fixed in the nature of things, and that this process does not necessarily bring the mind into contact with essential truth. The pulpit has largely developed the ability to read between the lines, and self-injection is a conspicuous feature of pulpit utterances. This power is admirable and must be cultivated, but runs to dangerous extremes unless checked by a complementary power.

The complement to the habit of self-injection is most definitely developed by scientific training. In obtaining results from the study of the phenomena of science, their value is in proportion to the power of self-elimination possessed by the trained observer. Any self-injection introduces error and vitiates the result. The standard in this case is not a conventional or variable one, but is absolute truth.

Both kinds of training are essential to those who would attack the largest problems, and who would wield the greatest influence. Unchecked self-injection may lead to mysticism; unrelieved self-elimination may lead to a rejection of everything that is not material. The best training has been obtained when these powers are well balanced.

It should be remarked, for fear of misunderstanding, that reading about science is not scientific training, any more than

reading about righteousness is training in righteousness. There is vastly too much reading about subjects which goes by the name of training. It is the atmosphere of work, rather than the stated results of work, that brings real knowledge, and the atmosphere of science is found only in the laboratory, which simply means direct contact with the subject-matter.

It may be well to state more in detail certain specific results of scientific training which may be of value to the pulpit, broadly included in the general effect already presented.

Such training results in an *increased power to recognize the essential relation between cause and effect*; to know what a demonstration involves. Speaking very frankly, I am bound to confess that my most painful experience in connection with pulpit utterances is the frequently recurring hiatus between cause and effect; the evident inability to recognize the inadequacy of testimony; the triumphant and confident statement of a conclusion which is far from proved. It is by no means claimed that rash conclusions are in any way peculiar to the pulpit, but that the pulpit, dealing as it does with such essential truths, should be peculiarly free from them. In very many cases supposed connections between cause and effect are believed through inheritance rather than investigation. Conclusions of former generations are accepted rather than questioned. In such cases severe scientific training is necessary to eliminate the hereditary element in belief, and to compel an open and judicial attitude toward testimony. Many assumed connections between cause and effect command reverence on account of their age, and it seems like sacrilege to question them. Such ill-considered reverence, however, is a hindrance to progress, for it confounds crude thinking with essential truth. That belief which prides itself upon a blind acceptance of all the consequences that follow some unproved premise seems to the scientific mind a stultification of the human intellect, and represents a mental attitude that cannot exist for a day in the laboratory. It is bad enough for anyone to have such an attitude, but when he is a public teacher, he compels belief on the part of those not trained to think for themselves, and compels disgust on the part of those who have been

trained to think. The serious, as well as the hopeful, feature of the situation is that the latter class is rapidly increasing.

Scientific training also results in an *increased power of analysis*. In the laboratory, when a phenomenon is under observation, it is generally recognized as a composite result obtained from several factors. It is the duty of the student to discover all possible factors, to distinguish the more important from the less important, to be absolutely sure that no factor is lurking unseen. In the early progress of science the discovery of a single factor which contributed to the explanation of a phenomenon was deemed adequate, but presently it was found that numerous explanations did not explain, and a keener analysis of phenomena was developed.

In such vast and vital phenomena as those which form the subject-matter of pulpit teaching the keenest analysis is demanded. It is demanded not only on account of the complexity of the subject-matter, but also because, from its very nature, it is completely enveloped by the husks of human opinion. It needs training in analysis to strip off these unessential husks and to discover the kernels of essential truth. There is no field of human inquiry which has inherited a greater mixture of essentials and nonessentials than the general field of religion; and there is no field in which sharper distinction should be made between what is known and what is inferred, between what must be and what may be. There is no field in which dogmatic assertions are so out of place, and in which the mind should be kept so open and receptive.

Since the civilized world has become somewhat trained in habits of analysis, nonessentials are becoming widely recognized, and he who proclaims them in the same assured way that he may well assume when proclaiming essential truth runs the serious risk of having both disbelieved. It would seem to be a very serious matter to imperil truth through lack of power to distinguish between it and a mass of inferences which hang about it like ill-assorted trappings. Truth has suffered more from being dressed up by its friends than from being attacked by its enemies, and the intelligent world today is loud in its demands for naked

truth. The vast inheritance of fact and opinion which is the possession of the pulpit demands the sharpest analysis. This is equally true of law, of medicine, and of ordinary teaching, as we are free to acknowledge; and no criticism of this sort can be directed against the pulpit in which the other learned professions do not share, but the overwhelming importance of the interests represented by the former justify us in making greater and more insistent demands upon it.

The chief end of scientific training, however, is to increase *the power of synthesis*. The accumulation of data and the patient analysis are regarded as sterile unless they lead to synthesis, for the purpose of science is to reach laws through the observation of results. It is true that a vast amount of scientific work consists of the dreary drudgery of accumulating facts, but it is simply the accumulation of material to be used in construction. This training in the use of material for construction would seem to be a very important one for the pulpit. No profession is called upon to deal with a wider range of material, and in no profession is the work of synthesis so difficult. The important generalizations connected with religion demand the highest development of the synthetic power, or they will be worse than useless. The tendency to organize theories without adequate training in the use of material is peculiarly rampant in all matters which have to do with the general interests of mankind. Most of these theories would never have been proposed had their authors been somewhat trained in synthesis, even a casual examination showing that the facts cited are not only few, but with no essential relation to the conclusions.

II. MATERIALS.—The proper use of the materials of science in the pulpit depends upon scientific training, rather than upon information about science. For this reason I have dwelt somewhat at length upon the results of scientific training. The actual material of science that might be available to the pulpit for illustrative purposes is too vast to come within the knowledge of the pulpit teacher. It is a captious spirit which would criticise such a speaker for evident lack of information as to the details of some natural phenomenon he is using as an illustration. An

illustration may be useful whether the details given are literally true or not. Criticism of this character is unjust, for it asks too much. Familiarity with the details of science should not be demanded, but familiarity with the methods and spirit of scientific work may be. Two men may be ignorant alike of the details of certain phenomena, but they may differ widely in the method of handling them, revealing in the one case the scientific point of view, in the other no point of view at all. But these are trivial matters when compared with the great fundamental truths of science, concerning which trained religious teachers should have some real knowledge. I propose to give some reasons for this statement.

a) The pulpit establishes itself upon the claim that man has received a revelation from God in the Holy Scriptures, and that these Scriptures contain the best guide to belief and conduct. Very properly, therefore, attention is focused upon the Scriptures, and every glimpse of truth discovered in them is treasured. So long as the Book is not made a fetish, its details are regarded as matters of secondary importance, and the chief endeavor is to discover its general purpose and principles, which the details may serve to illustrate. As a revelation of God, rather than of men's thoughts concerning God, this general view is necessary. It is readily acknowledged that if the pulpit has any claim upon our attention at all, this sort of study is fundamental.

But the pulpit also claims that God has revealed himself to man, not merely in the words of Scripture, but also in the works of nature. This would suggest that nature should at least be a minor study. Accepting both claims, it would seem likely that the revelation of Scripture is supplementary to that of nature, containing further, but not contradictory, revelation. From the point of view of the scientific man, therefore, it would seem more logical to read our knowledge of nature into our interpretation of Scripture, than to interpret nature by our conceptions of Scripture. There are certain things about nature that we can know in a way that Scripture teaching can never be known. All this is but another way of saying that the scientific habit of mind will be likely to obtain more clearly the essential truths of

Scripture than the one without such training. To say that a scientifically trained mind is not one adapted to the investigation of the Scripture revelation is too dangerous a claim to press.

The frequent attempts to interpret natural phenomena by conceptions derived from the Scripture revelation have so often ended disastrously that a reversal of the process might be suggested. That these disasters do not involve the Scriptures simply demonstrates that the conclusions were unessential. As an illustration it might be cited how common and painful were the efforts to show the perfect adaptation of everything in nature. The most trivial anatomical parts of plants and animals were held to be perfect, in the sense that they could not be better adapted to the work immediately at hand. Since it has been found that there is no such thing as perfect adaptation among organisms, and, furthermore, that perfect adaptation means stagnation, for it removes an essential factor in progress, not only have old views been corrected, but a very large new thought has been introduced.

Again, the argument from immediate design was once very strongly urged, but when it was discovered that the vast majority of so-called "designs," so far as plants and animals are concerned, are failures, the old argument was dropped, but in its place there came evidence of a design so noble and far-reaching that those once cited seemed trivial.

The gross mediæval conceptions of God, most of which seem horrible now, were derived from the Scriptures by those who were densely ignorant of nature, and to whom such conceptions seemed not at all incongruous. The development of knowledge of the laws of nature, more than anything else, gradually eliminated the grossest absurdities, and today the conception of God is a fair index of our progress. Better acquaintance with the laws of nature has brought a majesty into those phenomena once attributed to direct divine interposition that makes them seem far more worthy of such reference. That old conception of God which made him a huge magician outside of the universe—a conception far enough removed from that of the New Testament revelation, and to this day so hard to eradicate—was abandoned largely on

account of the discoveries of science. The orderly and invariable operations of law, which became more and more evident, demanded either an abandonment of the idea of a "providence," or the claim that these laws were but his methods of working. In this way science may be said to have restored God to the universe. The further contributions of science to this interesting field of speculation remain to be seen, but that conceptions of God will change with increasing knowledge seems evident, and in so far as he is claimed to have any connection with the phenomena of nature will science necessarily contribute toward this change of conception.

These are but a few illustrations of the attempt to read Scripture into nature, rather than nature into Scripture, and the claim is advanced that the pulpit would be tremendously strengthened if it should cultivate the scientific point of view just enough to use it as a check.

b) Aside from any claim that nature is a partial revelation of God, and so deserves the attention of the professional teacher of religion, it is even more fundamentally important in revealing certain facts in reference to man. After all, the great problems of religion center about man, his origin, his conduct, his destiny. Anything which contributes to a knowledge of these great fundamental subjects is not merely worthy of cultivation by the pulpit, but essential.

In the very nature of things, science touches the human problem only in its present aspects. The origin and destiny of man are interesting, but hardly vital questions as compared with his present structure and tendencies. I presume it is the man of today, with his good and evil impulses, that represents the field of the pulpit teacher, and that his purpose is to strengthen the good impulses and to check the evil ones. At least this is the workable field, and it would seem to be a waste of energy to dwell too much upon such speculations as origin and destiny.

It is in this very field of man's present structure and tendencies that science can be of the greatest service. Three great problems may be used as illustrations of this point.

1. *Heredity*.—The problems of heredity are at present attracting the widest attention among students of biology. Enough has been discovered already to be of service, and to assure us that the problem is probably not an insoluble one. The influence of various factors in determining the nature of offspring is recognized, and the influence of ancestry is becoming more definitely known.

In formulating any movements for the interest of mankind, if the laws of heredity be taken into account it becomes at once evident that the same treatment is not applicable to all cases. The habit of analysis, which studies men, and groups them according to their hereditary tendencies, is essential to one who would help them most effectively.

The whole subject, however, is perhaps too indefinite as yet to be of any great service, but it is full of promise.

2. *Environment*.—The influence of environment is a much more definite thing, and is of immense importance in the human problem, as in all regions of biology. Nothing is more clearly known than the effect of environment upon the structure and tendencies of all organisms, and these facts find direct application in the moral structure and tendencies of men. In a blind way this has been long recognized, and movements based upon it have been organized, but they have never yet been adequately adopted by the pulpit.

To speak in a very general way, environment is so variable a thing that it results in numerous groups of men. Any single method of approach can be adapted to but few of these groups at most, and does not reach the others. In the formal organization of the church and its pulpit the contact with groups is narrow, and the majority of men are untouched. I only speak of a well-known and much-lamented fact.

An illustration may be taken from plants. The surface of the earth is not covered by vegetation at random, but plants are organized into definite societies, dependent upon environment. In some of these societies there is deficient water supply, in others excessive water supply, in others a lack of special soil constituents, in others a lack of light, in others too intense light,

in others excessive heat, and in still others a great lack of heat, etc., etc.; and all of these conditions have developed peculiar plant types. It is evident that if one studied only the group with deficient water supply, he might reach the conclusion that water is the panacea for all unfavorable plant conditions, and that to bring them all to one common level of vegetative power they should be treated with water. The folly of such a conclusion is apparent upon the statement; for it is evident that such treatment would result in improving one or two groups, would have no effect upon certain other groups, and might seriously injure still others.

A study of the laws of environment must result in demonstrating to the formal church organization its own inadequacy, and in suggesting a reason for it, as well as a possible remedy.

3. *Evolution.*—This is at present a great working hypothesis of biology, and it has permeated every department of thought. It is a recognized law, although opinions may vary widely as to the extent of its application. Quite apart from its possible explanation of the origin of man, it finds large application in his present affairs. I know of nothing more helpful to the student and leader of men than a clear appreciation of the workings of evolution as exemplified in plants and animals. Aside from correcting gross current misapprehensions, which are so common and suicidal in pulpit utterances, the law is suggestive and encouraging to all helpers of mankind.

Evolution teaches that progress is gradual, that a better is progress toward the best, that sudden radical changes are not to be expected, that the future has its roots in the present. It teaches that revolutions are not the ordinary way of working, and that reformation may be very slow. It forbids unreasonable demands upon the individual or upon society, and discounts the usual type of reformer. It shows that there have been no universal catastrophes and new creations, but that the present has gradually evolved from the past, and that the future will appear in the same gradual way.

Furthermore, it shows that advance in a certain direction may not be uniform, for there are periods of apparent recession,

as well as those of more rapid advance. The results are only apparent in the large view over long periods of time, when the tossing back and forth of surface waves disappears, and the steady advance of the slow-moving current becomes apparent.

Perhaps most important of all, it teaches that man is a poor interpreter of individual events, and has no means of deciding whether they contribute to advance or not. Hence it must lead to cautious and charitable judgments, but at the same time it supplies a strong ground of confidence that there must be eventual progress. Some of the minor details of evolution are useful to the pessimist, but its whole sweep justifies the broadest optimism.

I have written the above with the fullest appreciation of the herculean task laid upon the pulpit today. In fact, it is so great that to me it seems appalling and even impossible. The body of knowledge is becoming so vast and so specialized that the pulpit dares not handle it freely, lest it display its ignorance; and yet it dares not ignore it. With a rich heritage of abstractions the preacher is compelled to face a very concrete world, and finds the adjustment hard.

I venture to suggest that there are certain essentials which belong to the pulpit teacher, essentials in which he must be a specialist. These essentials are few and simple and very effective, as was clearly shown by the founder of Christianity. Whenever the pulpit is led away from these essentials into metaphysical tangles, it ceases to be effective in a world not given to metaphysics. Or when it abandons the essentials to pronounce in *ex cathedra* fashion upon movements in other departments of thought and work, it also ceases to be effective, for the thoughtful world recognizes that it speaks without adequate knowledge.

In spite of all this, to recognize essentials and to enforce them effectively under the present conditions demands some modification of the preparation useful a half century ago. It is the glory of the gospel that it remains the same through all changes of human thought. If its claims are true, nothing can

be taken from it or added to it. But it is also true that its presentation must be adapted to current knowledge and current habits of thought. No more illustrious examples of this can be cited than the founder of Christianity and his most successful messengers. All of these adapted the message to those to whom it was given. It had acquired no formal, hereditary dress, but dwelt among men as it found them. The message is never changing, but its presentation must be ever changing.

The great body of thinking men want the gospel from the pulpit, but they want its presentation to have something in common with their knowledge and their habits of thought. The most conspicuous additions to knowledge, and the almost complete transformation of habits of thought, have come from the development of science. It would seem essential, therefore, for the pulpit teacher of today to enter the laboratories of science, in order that he may secure at least two things: (1) the scientific attitude of mind, which can only be obtained in an atmosphere of actual work; (2) some knowledge of the great underlying principles of science.

These suggestions are offered with no thought of enfeebling the message, but with the earnest longing that the messenger may become more powerful, by being trained to utilize all that is most serviceable in materials and methods.